

Evaluation and Measurement Techniques for Digital Computer Systems, Mansford E. Drummond, Jr., Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1973. 338 pp.

Data Processing Systems: Their Performance, Evaluation, Measurement, and Improvement, Saul Stimler, Motivational Learning Programs, Inc., Trenton, New Jersey, 1974, 183 pp.

Computer System Performance, Herbert Hellerman and Thomas F. Conroy, McGraw-Hill Book Company, New York, 1975, 380 pp.

Computer Performance Measurement and Evaluation Methods: Analysis and Applications, Liba Svobodova, American Elsevier Publishing Company, New York, 1976. 146 pp.

Evaluating the performance of computer systems is one of those specialties that has grown from a small portion of a generalist's job into an independent discipline. Introductions to the topic have grown from chapters of books into hefty books themselves. Today, there are two professional groups dedicated to the study of performance evaluation and a monthly newsletter, and each year 100 new papers are added to the bibliographies.

Books

As both the quantity of literature and interest in the discipline grow, the need to organize and systematize this body of knowledge becomes increasingly important. Thus 1973 marked the publication of the first book dedicated to the study of performance evaluation, followed since then by a book each year.

Evaluation and Measurement Techniques for Digital Computer Systems by Drummond was the first book to organize, explain, evaluate, and trace the development of measurement techniques. This book emphasizes the history of performance evaluation, particularly early developments such as the Machine Usage Recorder used with IBM 7090 systems. All aspects of hardware monitors are covered very well, including the importance of developing system profiles for evaluation and of system profile conversion for performance prediction. Different types of software monitors are introduced and explained. As a text, this book is stronger on measurement than on prediction. Although simulation is introduced and explained, the emphasis on simple models and methods of solution that one sees in recent conferences and papers is missing.

Data Processing Systems: Their Performance, Evaluation, Measurement, and Improvement by Stimler is written much more for the user of computer systems than for the student. Emphasis is on practical techniques, using simple definitions

(example: "Hardware are those components of the system which can cause a broken toe if kicked hard enough"). Hardware and software tools are covered adequately, but briefly; one misses Drummond's explanation of systems profile conversion. Little emphasis is placed on modeling, or on simulation techniques or mathematical methods.

Comparing *Computer System Performance* by Hellerman and Conroy with the books by Drummond and Stimler, one could say that it takes an opposite approach, insofar as this is possible in a book on the same subject. For example, hardware monitors are very important to Drummond and Stimler; here, they are referred to only twice. System profiles and profile conversion are not mentioned at all. Instead, a great deal of space is devoted to statistics, making this a book only for the highly motivated reader. Designed for senior level courses, it might be valuable as a text accompanied by lectures. Chapters on operating systems, introducing OS/360 and virtual storage systems, make this a handy reference, but they are of little value to the computer user with an immediate problem.

One wishes that the most recent book would be a synthesis of those preceding; unfortunately, this is not so. *Computer Performance Measurement and Evaluation Methods; Analysis and Applications* by Svobodova takes an academic view of the discipline. A brief discussion of performance leads right into system and workload models. Only then are the basic tools covered. This organization provides a consistent intellectual approach, one I generally favor. The book is an expansion of the author's doctoral dissertation and contains an excellent set of references. In some cases, however, topics are introduced without being adequately explained.

Despite the fact that all four of these books cover the same discipline, they overlap very little. Each will have its use and advocates. In order, I prefer Drummond because of his historical approach, Svobodova because of her emphasis on modeling, and Stimler for his practical focus. Hellerman and Conroy is a valuable reference, containing much information not in any of the other books.

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The editors assign reviews of books that might interest our readers. Reviews are signed, and opinions expressed are those of the reviewers.